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ROB: A BIRD BIOGRAPHY.

BY REV. SAMUEL LOCKWOOD, PH.D.

IN the clearer light of these latter days, a higher value has settled on the so-called small things of nature. To-day the student thinks he finds in the lower realms of animate beings a psychology, perhaps also a morality, and a self consciousness, which he asserts are the "baby figures" of better things that were ordained to come. It may be that Mrs. Partington spoke wiser than she knew when she said; "Human nature is human nature, if you do find it in a cow." And though so lowly, how educable are these emotional and sensitive creatures! Could one know all about them, perhaps each would be found to have an interesting biography. Let us attempt to tell the story of a tame robin, *Turdus migratorious*.

Rob, for so we shall call him, was taken from a nest on Long Island. Though passed the 'calow stage, he was not fairly fledged. His pap was meal mixed with fresh milk, a point which he insisted on ever after. He was turned a year old when he became one of our pets, and very soon he had established himself in our affections. He was very exacting of attention—so demonstrative and familiar. In the very pertness of its humor the conduct of the bird seemed paradoxical; for though in its way almost beseeching your notice, it would, on your approach, assume a repellant attitude, with wings striking and bill snapping. But to witness the "high-jinks" of his fury, it was only necessary to intrude a hand into the cage, keeping the back upwards, and Rob would seem wild with savage gladness, for he would settle on it and peck away with his sharp bill at the knuckles as if he were picking into a big bonanza. Much sentiment is wasted about keeping birds in confinement. Does it not generally come from such as are intolerant of pets? "It is a deprivation of natural freedom." So thought the horse in the meadow, as he beheld the ass roaming in the unfenced sand lots. Even birds may have "hard times." Yes, I have known the free wild birds to be starved to death within the sound of a canary's song. But perhaps Rob was unsentimental, for it was plain that prison or not he liked his cage. In it he was at home, and well to do—away from it he was a-drift and unsettled. The door of the cage was sometimes left open for a little while, a proceeding which usually called

for large consideration on the part of the occupant. At such times he would look as quizzical as a knowing young barrister: "Want to get me out, hey? Ah, but possession is nine-tenths of the law!" Still, even wise folks may be inquisitive, and Rob was not above that weakness. He would stand on the door-sill of the cage and with those pretty hazel eyes take in the outlook. This done, with a gravity fitting the act he would step in again, and resume his uppermost seat—the top perch. Sometimes Rob would come out for a little while.

As a rule, excess of freedom is pretty sure to cause our pets to come to grief. The real giant grim of the birdies is Grimalkin; and he is everywhere. We had got lengthening Rob's parole with bad effect on his circumspection. In fact there was a slackening up of the usual bird prudence. One day found him missing. So Rob had run his parole! No, he had not. The pear tree was white with bloom, and he thought to enjoy himself in its branches. Alas, Grimalkin was hidden there, and the catastrophe was serious. We found the poor bird half dead, with a gory laceration of the breast. How he got himself out of the mouth of the carnivore seemed a mystery. But Rob had gone through life so far on his cheek, and my belief is that his escape was due to his plucky impudence. In his case the proverb had been emphatically true: "Familiarity breeds contempt." I had often taken him pettingly into my hands, when, not from terror but sheer temper, he would bite and scream like a vixen. He seemed to fear nothing. As for the cat and the dog they were nobodies whom he saw every day. Now, I have seen the wild robin when caught by the cat, and the victim was as resistless as a clod, in sooth, it was paralyzed with terror. With Rob the case, I think, stood thus: The cat had a hold on his breast with her mouth, but owing to the smallness of the branch which supported her, she had to use all her feet to keep her position although needing the fore ones to help retain her prey, for Rob, though badly frightened, kept his senses, and doubtless used his wings and bill to good purpose on the face and eyes of his grim captor, thus accomplishing his release. It was a long while before the bird got over that wound, which left an ugly though not dishonorable scar.

The bird had its own amusements. Is there not an instinct in whose manifestations our little girls are strangely like the birds?

In their plays how our children anticipate the cares and ways of motherhood—the nursing and the dressing of the doll, the make-believe keeping house, etc. A hundred times have I seen cage birds go through a “dumb show” of mimic nesting, fussing with laborious concern over a feather, or stick, or straw, or hair. I have seen Rob running about his cage with a bit of straw in his mouth, and uttering a conceity twitter, as if he were in live earnest, and saying to a supposable partner in the business: “Here, Mrs. Rob, is just the thing you want.”

If one wanted to get Rob on a string, it was enough to give him, in technical parlance, the proximal end of a bit of grocer's cord, reserving to one's self a hold on the distal end. How perseveringly the bird would draw the cord into the cage, and with system too. Seizing it with its bill an inch or two would be drawn in, and a foot put on it, then a little more pulled in and held in place in like manner, and so on until the other end was reached. Now the fun began. Gently the coil was drawn from under the bird's foot; this would bother Rob, for though he was pretty fair on practical reasoning, he could not take a step in the abstract. With quickened energy he would go the thing all over again; and again he would find his labor slipping from under his feet. This at last would excite a spurt of temper, and the thing would be given up in disgust.

Owners of cage pets do not always reflect that birds of the Passerine group are the most delicately organized; hence they are often irritable. Coues has well called them fast livers, they so freely consume oxygen. Rob had a high temper. A trick, perhaps unwise but really amusing, was sometimes played on the bird. A bit of rubber or elastic cord was tied to one of the wires of the cage. Rob would seize it in his bill and pull, though but an inch long, the bird's efforts would stretch it to a number of inches, when just as he was pulling the hardest, it would fly back again, and Rob, to his dismay, would be set back too, with a recoil that fairly lifted him off his legs, and over his tail backward. In the matter of experience the bird never learned at the first lesson, but would keep on meeting the same mishaps, until badly beaten with his own petard, he would give it up as a bad job.

There may not be much dignity in it, but the boy does find some enjoyment in running backwards and forwards by a picket

fence, teasing the testy dog which keeps up with him on the other side. Often Rob had his disposition tried by some one rasping a finger along the wires of the cage. He would pursue the obnoxious digit, snapping his bill furiously, as only a bird can do. By and by would be heard a sharp involuntary "Oh!" telling that Rob had got in a good point on his tormentor, and thus closed the game.

Our robin often afforded matter for study and delight in those expressive attitudes of which birds only are capable, and which too effectually elude the artist's pencil. What high-wrought excitability and poetic expression appear in these movements. What barbaric defiance in the cresting of the crown feathers of the head, that queer furring up, or puffiness of the cheeks, indicating that the hearing is keyed to a strain; that jaunty setting of the head, and saucy cocking of the eye, for a bird never looks so knowing as when he looks sidewise—all this fills a hiatus where speech cannot get in. Even the tail adds to the action. Now comes a decisive chirp. A conclusion has been reached in the bird mind. Next is a series of rapid chirps, making a whirr of sound. This is the call-note of his tribe, for he has detected a turdite in yonder grove, and hark! the call is answered.

But what does Rob know of his clan? Well, some knowledge he has of inheritance, for there is both with birds and men a knowledge which cometh not with observation; some of their ways have come to him by descent. It is now March, and Rob has the spring fever badly, that migratory phrenzy which has set the whole tribe moving north. While the spell lasts he is impatient of home, and is as mad as a March hare. Some robins in that cherry tree have set him fairly wild; and even when there is neither sight nor sound of bird, that migratory impulse, that mystic call to move and mate, keeps the poor bird uneasy. Happily it does not last many days. By April he does something better than chirp, for he gets into a strain like the conjugal song of the robins. Through several days it is so low, soft and silvery, so tender and sweet; but this over the melody is set on a higher key, and becomes a volume of exultant rapture. He has now taken up an octave flute. In his dumpy moods he has been talked to pettingly so much, that he knows the words like a book: "Wake up, pretty boy! Wake up! Wake up!" The boys sing the words, again, and again. Then they whistle them. The bird

catches this little snatch of melody, and executes it in a clear distinct enunciation. This is Rob's best role. Pity that sweetness should ever cloy, but Rob did give us too much of a good thing. Through the summer months, an hour before daylight, on the highest key possible, came that piccolo strain, "Wake up, pretty boy! Wake up! Wake up!" Bob's cage was inside the window-blinds, and by the time the twilight was breaking up, generally several robins had visited the cherry tree near the house, attracted by the singer whom they could not see.

The prince of the mimics is the mocking-bird. But to some degree are not all the thrushes mimics. The cat-bird is really clever in this direction. However I own to a surprise on hearing that Rob had gone into the mimic art. Whenever our black-and-tan, Dick, heard his young master whistle an invitation to take a walk with him, the affectionate brute would almost lose his head in yelping gladness. It was a beautiful day in June, and Dick was seen acting as if half dazed, running up and down the yard looking for his master but unable to find him. Rob had learned the dog-call, and from behind the window-blinds was practicing his new accomplishment. The dog soon saw the trick and slunk away not a little abashed. We all felt that though funny, it was really mean of Rob. Our neighbor's fine hunter was bothered in the same way. Rob tried his hand on the call used by Madame to her poultry at feeding-time. The attempt did him no credit, perhaps for the reason alleged by one of my sons, that "the chickens didn't know enough to get sold." But with some folks failures are simply the preludes to success. Our mimic had grander things in reserve.

Rob's successful play upon Dick was not his only attempt at imposition. On one occasion the good lady of the house being up stairs came running down in great concern, there was such a cry of distress among the young chickens, "Peep! peep! peep!" in rapid plaint smote her gentle ear. To reach them she had to pass Rob's cage. Here she stopped short, and gave vent to an outburst of laughing indignation, for it was Rob, the rascally mocker, who was doing his best to set all the maternal hens at ears about their babies. Though somewhat perplexed, these elderly birds were not very badly taken in. At another effort Rob achieved a marked success; he imitated the cry of the mother-hen when the hawk is overhead—that low whirring note

of danger. All was consternation in the barn-yard. Away sped each callow brood to their own particular mamma, who, though unable to see any danger in the air, yet supposing the alarm to come from some watchful mother that did, instantly took her own charge under her wings. Rob's mimicries were generally perfect. In executing some of them he was so loud-voiced as to be heard a long way off. Persons at quite a distance have been attracted by these notes, and have called to see our "mocking-bird," and been much surprised to learn that it was "only a robin."

The senses of birds must be very acute. I would instance in Rob's case that of scent. He was extravagantly fond of fresh beef, and though in a different room, could tell the arrival of the butcher's boy in the kitchen, when he would scream with impatience. Little strips of raw beef were fed him. If when receiving one morsel he saw another in the fingers of his mistress, he would drop it on the floor of his cage and wait for the next bit with nervous impatience; and so would he do until he had secured all that his sharp eyes saw, which done, he ate these delicacies in a perfectly orderly way. How unlike a dog which swallows as fast as he can the meat given it. But Rob was particular, the meat so providently put on the floor of his cage was thus rendered dirty; the knowing bird would take it piece by piece and wash it in his water tub. This conduct showed the nearest approach to abstract reasoning that I ever saw the bird make. Many of the birds like this condiment of leisure with their food. How often have I seen a fowl pick up a grain of corn, then drop it and look at it, then pick it up, drop and inspect again several times, then swallow it, and all with no other logic in the matter that I could see, than to make the most of one's blessings. So with Rob, having got his store before him, he enjoyed it in a leisurely and sensible way. He was very fond of the larvæ which we used to find in chestnuts. Even these he could smell afar off, and would go into ecstasies, making a lively chattering talk, as one was brought to his cage. The presentation of a spider was a grand event. But as to earth-worms, he had a soul above all such. So far as Rob was concerned, the early bird was entirely welcome to them.

I think our pet must have been five years old when he had a hard time molting, and the result, too, was quite notable. When the large feathers began to come, two white ones appeared in the

tail. Oh, tell it not among his kith that Rob, the plucky and the impudent, shews the white feather! But leaving figure and coming to fact, the truth is, the poor bird was greatly distressed about it, so much so that he made up his mind he would not stand it, but would extract the offensive things, and at it he went. The tail was deflected so as to meet the head, itself turned under the perch; the bill then seized one of the craven feathers and pulled desperately. As if the perch were a trapeze, the bird swung fairly round, going over backwards and falling on the floor of the cage. But the feather had not come out. At it again he went in the same way, and with the same result. And this was kept up nearly an hour, by which time the tail had become all dyed with blood. At last the odious feathers were removed, and the poor bird, weak, bleeding and suffering, put its head under a wing and took rest. What shall be said to this? Was it pride, a certain proper self-respect? We cannot say. But this matter caused us a good deal of solicitude, for it was kept up some weeks, as the feathers would come in white. So at length the bird submitted in sheer despair. When the feathers came to the full there were two white ones in the tail, and as many in each wing. At the next molt the number of white feathers increased. When he was eight years old all the primaries of both wings were of a snowy whiteness, also the retrices, or large tail feathers, except the central pair which kept their normal dark color in bold contrast as lying on a bed of white. This certainly was a strange costume for a robin; in good sooth, his own mother would never have known him. In our eyes Rob, though in an eccentric costume, seemed a gay and elegant fellow.

This partial albinism, we believe, is occasionally found among the robins. But what is its meaning? Attacking the largest feathers of the tail and wings, it might indicate inability of the pigment cells to furnish color any longer at those parts of the plumage where the demand was the greatest. It is doubtless due to an exceptional atrophy of the secreting color-glands.

Our pets were usually divided round in the family. Rob was claimed by my daughter. It was a tender parting when with her husband she left for a new home in a great western city. And even Rob had no small share of our good-byes when taken to the car with the bridal pair. In his western home he was allowed enlarged freedom, his cage with open door being often set in the

garden. When his cage was hung under a tree by the side-walk, the pedestrians would stop and wonder what bird that could be with so strange a plumage and so novel a song. When free in the garden Rob would have a good time of it, occasionally finding a dainty insect. But the dear fellow was getting old. Nine years is rather high for *Turdus migratorius*, and his appetite was becoming a little unnatural. He found a piece of twine, and by persevering succeeded in swallowing it. That was the worst string ever Rob got on. That western investment was the death of him.

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ON THE MORPHOLOGY OF THE SEMICIRCULAR CANALS.¹

BY FRANCIS DERCUM, M.D., PH.D.

IN biology we meet, at every step, new and interesting questions. How this or that structure arose, what this or that fact means, are the problems which continually present themselves. The data are few and scattered, yet the attempt to arrange them in some logical manner is at least justifiable, and though our success may be doubtful, we at least take a step in the right direction.

Such an attempt let us make in regard to the semicircular canals. Under the idea that these structures, like all others, were formed for a special purpose—were designedly made to meet certain ends—a great variety of functions have been assigned to them. Viewed in the light, however, that every organ is the resultant of certain definite and interacting forces, the mere question of actual or present use becomes a secondary one. Let us see what the various facts I have collected seem to point out.

Before we attempt to understand such a complex organ as the ear, it would be well to look over the field of zoölogy to see whether we cannot find other and simpler organs of sense, which may perhaps give us the right clue. Such organs I believe to be the so-called mucous canals or lateral lines of fishes and amphibians. These structures, I need hardly say, have been ably demonstrated by Leydig, F. E. Schulze and others to be sensory. They consist essentially of small areas of nerve-epithelium arranged in linear series along the sides of the head and body, having hair-cells continuous with nerves and being in every way comparable

¹ Read before the Alumni Association of the Auxiliary Department of the University of Pennsylvania, March 28, 1879.